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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,801	01/15/2002	Evan C. Unger	UNGR-1629	7636

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EXAMINER	
HARTLEY, MICHAEL G	

ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 10/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/046,801	UNGER, EVAN C.	
	Examiner	Art Unit	
	Michael G. Hartley	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-34 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-34 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-11, 18, 21-24 and 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Gould-Fogerite (US 5,994,318), as defined by New (US 6,368,619).

Gould-Fogerite discloses a composition comprising cochleate vesicles comprising a charged lipid, a counter-ion, a lipid covalently bound to a polymer and a bioactive agent (e.g., a drug), see abstract and column 2. The negatively charged lipids include phosphatidylserine, etc., as claimed, see column 7, lines 9-12. The counter-ions include, divalent cations, such as, Ca^{2+}, etc., as claimed, see column 8, lines 1+. The vesicles may also include positively charged lipids, such as, phosphatidylethanolamine, and EDTA, see column 6, lines 62 through column 7, line 8. The vesicles include lipids which are covalently attached to a polymer (e.g., a polypeptide), see column 7, lines 7-8 and column 8, lines 39+. Various drugs may be carried by the cochleates, see column 10.

NOTE: Gould-Fogerite does not recite the size of the cochleates (as claimed, e.g., under 2 um); however, such size is an inherent characteristic of "cochleates" as these are small unilamellar vesicles. Gould-Fogerite recites that the cochleates are small unilamellar vesicles, see column 7, line 29. The size of small unilamellar vesicles (including cochleates) are defined as being about 25 nm, see column 5, lines 42-47 of New (US 6,368,619). Thus, the New reference is being used in this rejection under 35 USC 102 not to modify the Gould-Fogerite but to define the cochleates disclosed therein.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-16, 18-24, 30 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gould-Fogerite (US 5,994,318) in view of New (US 6,368,619) in further view of Yoshioka (US 5,593,622) and Riess (US 5,344,930).

Gould-Fogerite discloses a composition comprising cochleate vesicles comprising a charged lipid, a counter-ion, a lipid covalently bound to a polymer and a bioactive agent (e.g., a drug), as set forth above.

Gould-Fogerite does not specifically disclose the size of the cochleates.

However, cochleates for pharmaceutical use are known to be in the size range of about 25 nm, as shown by New, see column 5, lines 42-47.

It would have been obvious to one of ordinary skill in the art to form the cochleates of the size range claimed because it is known in the art that cochleates that are about 25 nm in size are useful for the same use as disclosed by Gould-Fogerite, namely, pharmaceutical use, as shown by New.

Further, Gould-Fogerite teaches that various lipid materials may be employed, including lipid-polymer (polypeptide) conjugates, but fails to disclose that polymer may be, for example, PEG, as claimed. However, the use of phospholipids conjugated with PEG, such as, phosphatidylserine-PEG are very well known in the use of drug delivery vesicles, as shown by, for example, Yoshioka.

Yoshioka teaches that liposomes (a related vesicles to cochleates) having a negatively charged lipid (i.e., phosphatidylserine) with PEG bound thereto (in various amounts thereof, as claimed) provide the advantage extending the *in vivo* life of the liposomes, preventing adsorption of plasma proteins, preventing agglutination, etc., see columns 1-2 and claim 8.

It would have been obvious to one of ordinary skill in the art to use phosphatidylserine-PEG for the phosphatidylserine in the cochleates disclosed by Gould-Fogerite because it is well known in the art that negatively charged phospholipids (i.e., phosphatidylserine) with PEG attached thereto, provides improved vesicles for *in vivo* use, by providing various advantages, including, extending the i*n vivo* life, preventing adsorption of plasma proteins, preventing agglutination, etc., as shown by Yoshioka.

Gould-Fogerite also fails to disclose the use of fluorinated lipids in the cochleates. However, the use of fluorinated lipid, e.g., fluorinated phospholipids, is well known in the art, as being useful modified lipids for such drug delivery vesicles.

Riess teaches that fluorinated phospholipids are improved surfactants as compared to phospholipids, since the fluorinated derivatives are less sensitive (e.g., to oxidation) and are highly biocompatible making them especially useful in medical applications, i.e., drug delivery, see column 1-2.

It would have been obvious to one of ordinary skill in the art to use fluorinated phospholipids as the phospholipids in the cochleates disclosed by Gould-Fogerite because it is well known in the art that the use of fluorinated phospholipids provides improved vesicles for *in vivo* use, by providing various advantages, such as, vesicles with a surfactant that less sensitive (e.g., to oxidation) and that are highly biocompatible, as shown by Riess.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-34 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. US 6,120,751. Although the

conflicting claims are not identical, they are not patentably distinct from each other because claim 1 is generic to all that is recited in claim 1 of the '751 patent. That is, claim 1 falls entirely within the scope of claim 1 of the '751 patent, or, in other words, is anticipated by claim 1 of the patent. For example, claim 1 of the patent differs by reciting that the cochleate comprises a gas or gaseous precursor which comprises a fluorinated compound, but does not recite "bioactive agent" as presently claimed. However, the gas or gaseous precursor is a bioactive agent, e.g., it is a subgeneric term which is within the scope of bioactive agent, as is provides a means of imaging when administered *in vivo*. The instantly claimed cochleates include the same gas or gaseous precursors in claims 25-29. The cochleates of the patent also include a targeting agent, in claims 13-14, which is within the scope of a bioactive agent as claimed. For example, the patent defines the targeting agent as to include DNA, etc., thus encompassing the bioactive agent in claim 20. Also, the claims of the patent include the same lipids, lipid-PEG conjugates as claimed, e.g., see claim 11 of the patent as compared to claim 17. Further, the patent defines cochleate to be within the size range as claimed.

Conclusion

No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael G. Hartley whose telephone number is (703) 308-4411. The examiner can normally be reached on M-F, 7:30-5, off alternative Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page can be reached on (703) 308-2927. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

Michael G. Hartley
Primary Examiner
Art Unit 1616

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